

Attorney Docket No. 9022-20

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Schwarz  
Serial No.: 09/733,306  
Filed: December 8, 2000  
For: *METHODS OF FACILITATING VASCULAR GROWTH IN CARDIAC MUSCLE AND  
METHODS FOR THE PRODUCTION OF RECOMBINANT EMAP II*

Confirmation No. 3192  
Group Art Unit: 1633  
Examiner: Janet L. Epps Ford

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 C.F.R § 1.132  
OF MARGARET A. SCHWARZ, M.D.**

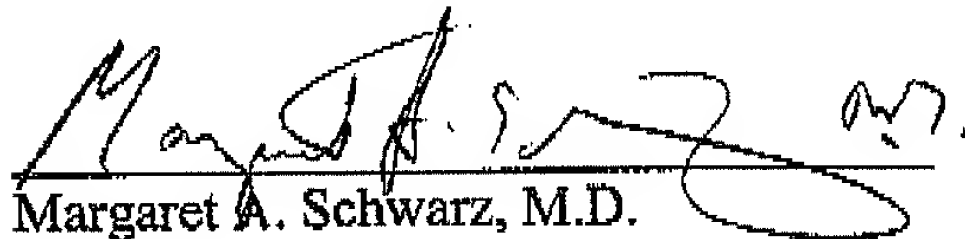
Sir:

I, Margaret A. Schwarz, do hereby declare and say as follows:

1. I am the named inventor on the above-identified patent application (hereinafter "the '306 application").
2. I am currently an Associate Professor of Pediatrics at the University of Texas Southwestern Medical Center at Dallas, Department of Pediatrics.
3. My *curriculum vitae*, which describes my background and training, is attached hereto as **EXHIBIT A**.
4. The data presented in Example 1 of the '306 application, "Delivering a Specific Blocking Antibody to EMAP II Following Myocardial Infarction Generates Marked and Sustained Improvement in Myocardial Function," reports the use of a polyclonal EMAP II antibody to improve diastolic function and ventricular contractility in an animal model.
5. The antigen used to raise the rabbit polyclonal antibody is the 13-mer reported in Example II of the '306 application: DAFPGE<sup>PD</sup>KELNP (Amino Acids # 252-264).

6. The antibody discussed in paragraphs 4 and 5 above was also used in the immunolocalization and western blot analysis of EMAP II reported in the publication: Jess L. Thompson, James A. Ryan, Mark L. Barr, Benjamin Franc, Vaughn A. Starnes, and Margaret A. Schwarz, "Potential role for antiangiogenic proteins in the myocardial infarction repair process," *Journal of Surgical Research*, vol. 116, no. 1, pages 156-164 (2004).

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

  
Margaret A. Schwarz, M.D.

5/7/08  
Date

Attachment: **EXHIBIT A:** *Curriculum Vitae* of Margaret A. Schwarz, M.D.

## Curriculum Vitae

Margaret Arlene Schwarz, MD (Formerly Brookens)      Date of Birth: March 25, 1963

Home Address:      6411 Pemberton Drive      Place of Birth: Kansas City, MO  
Dallas, Texas

Office Address:      UT Southwestern Medical Center at Dallas  
Department of Pediatrics  
Division of Critical Care  
Division of Pulmonary Vascular Biology  
5323 Harry Hines Blvd.  
Dallas, Texas 75390-9063  
(214) 648.2330  
margaret.schwarz@utsouthwestern.edu

Marital Status:      Married

Spouse:      Roderich E. Schwarz, MD, PhD

Children:      Anna Magdalena (10/6/95), Johann Richard Egbert (11/26/98),  
Carla Dorothea Helene (7/25/00), and Liesa Marie Henriette (6/7/02)

Present Title:      Associate Professor

### **Graduate Education:**

High School:      William Chrisman High School, Independence, MO, 1981

University:      University of Missouri, Kansas City, MO, 1986, BA, Biology

Medical School:      University of Missouri Six-Year Medical School,  
Kansas City, MO, 1987

### **PostGraduate Education:**

Internship: Childrens Hospital Columbus, Ohio, July 1987 - June 1988  
Pediatric Internship

Residency: Childrens Hospital, Columbus, Ohio, July 1988 - June 1990  
Pediatric Residency

Fellowship: Childrens Hospital of Pittsburgh, PA, July 1990 - June 1993  
Pediatric Critical Care Fellowship

### **Academic Appointments**

Instructor  
University of Pittsburgh 1993-94

Assistant Professor  
University of Pittsburgh May 1994

Assistant Professor  
Columbia University of New York 1994-1996

Assistant Professor 1996-2001  
University of Southern California  
Critical Care Medicine  
Division of Cardiothoracic Critical Care

Associate Member 1997-2001  
USC/Norris comprehensive Cancer Center  
Cell Biology Research Program

Assistant Professor 2000-2001  
Department of Cell and Neurobiology

Pediatric Critical Care Fellowship Director  
Childrens Hospital of Los Angeles 2000-2001

Assistant Professor  
UMDNJ Robert Wood Johnson Medical School  
Department of Surgery  
Division of Surgical Sciences  
Secondary appointment in the

Department of Pediatrics 2001-2004

Associate Professor - tenured

UMDNJ Robert Wood Johnson Medical School

Department of Surgery

Division of Surgical Sciences

Secondary appointment in the

Department of Pediatrics 2004- 2007

Associate Professor

UT Southwestern Medical Center at Dallas

Department of Pediatrics

Division of Critical Care

Division of Pulmonary Vascular Biology 2007-present

**Hospital Appointments:**

Childrens Hospital of Pittsburgh 1993-1994

University of Pittsburgh

Babies and Childrens Hospital

Columbia University of New York 1994-1996

Childrens Hospital of Los Angeles

Keck School of Medicine

University of Southern California 1996-2001

UMDNJ

Robert Wood Johnson Medical School 2001-2007

UT Southwestern Medical Center at Dallas

Children's Medical Center 2007-present

**Licensure:**

Texas, 2008- Certificate # M8981 active

DEA: BB3739717

Ohio, 1987-1990 Certificate # 57271 inactive

Pennsylvania, 1990-1994 Certificate # 041746 L inactive

New York, 1994-1996 Certificate # 197155 inactive

California, 1996-2002 Certificate # G083327 inactive

New Jersey, 2002-2007 Certificate # 25MA07366600 inactive

**Certification:**

National Board Examination

Part 1 1985

Part 2 1986

Part 3 1988

American Board of Pediatrics 1991, #217462

Recertification in Pediatrics 12/99, 12/05

American Board of Pediatrics, Sub-board of Critical Care Medicine 1996

Recertification in Critical Care Medicine 5/02

**Professional Organizations:**

Society of Critical Care Medicine, 1993-Present

American Thoracic Society/American Lung Association, 1994-Present

American Heart Association, 1999-Present

North American Vascular Biology Organization, 1999-Present

American Physiologic Society, 2001-Present

**Honors and Awards:**

1993-1998, American Heart Association Clinician-Scientist Award

1993, Education Scholarship Award from Society of Critical Care Medicine (\$1,000)

1994, Pediatric Research Award from Society of Critical Care Medicine (\$ 500)

1995, Finalist for the Louis N. Katz Basic Science Research Prize of the American Heart Association (\$ 500)

1998, Dr. Edward Livingston Trudeau Scholar from the American Lung Association

2004, AOA

**Editorial Positions:**

**AD HOC Reviewer**

American Journal of Physiology: Lung Cellular and Molecular Physiology

American Journal of Respiratory Cell and Molecular Biology  
Pediatric Research  
Developmental Dynamics  
Experimental Cell Research  
Journal of Biological Chemistry  
Inflammation Research  
Experimental Lung Research

**Service on National Grant Review Panels, Study Sections, Committees:**

National American Heart Association:

Northeast Corridor Grant Reviewer, 2003

National Lung, Resuscitation and Respiration Study Group, 2004

National Institutes of Health:

NHLBI Respiratory Integrative Biology and Translational Research Study Section, Ad hoc reviewer, March and October 2004

NHLBI P01 Special Review Committee, 2004

K08/K02 ad hoc reviewer April 2005

NHLBI Respiratory Integrative Biology and Translational Research Study Section member 2005-present

**Service on Committees at Prior Institutions:**

Member of the Code Committee, Babies and Childrens Hospital, Columbia University, 1995-96

Member of the Transport Committee, Childrens Hospital of Los Angeles, 1996-2001

Appointed Director of the Protocol Committee for the CTICU, Childrens Hospital of Los Angeles, 1998-2001

Appointed member of the Institutional Animal Care Committee, Childrens Hospital of Los Angeles 1999-2001

Appointed Director of the Critical Care Fellowship, Childrens Hospital of Los Angeles 2000-2001

Member of the UMDNJ Pediatric Cardiovascular Surgeon Search Committee 2002-2003

Member of the Pediatric Cardiovascular Committee 2002-2004

**Service on Graduate School Committees:**

NA

**Sponsorship of Candidates for Postgraduate Degree:**

NA

**Sponsorship of Undergrad - Postdoctoral Research Fellows:**

<u>Name</u>	<u>Years</u>	<u>Career Development</u>
Kathy Graziano (van Leeuwen), MD	1995-1996	Pediatric Surgical Fellow, Motts Childrens Hospital, Ann Arbour, MI
Beth Ann Ditkoff, MD	1995-1996	Surgeon, Columbia Presbyterian, NY,NY
Mike Marvin, MD	1994-1996	Surgeron, NY
Jun Li, MD	1994-1996	Pharmaceutical Company
Janki Bhuva, MD	1997	Medical Resident
Carol Dersarkissian, MD	1997	OB/GYN Resident
John Lane, MD	1997-2000	Pediatric Intensivist and Cardiologist
James Ryan, MD	1998	Orthopedic Resident
Jess Thompson, MD	1998-2000	Surgery Resident, Mayo Clinic, MN
Benjamin Franc, MD	1998-2000	Medical Resident
Lyn Quintos, MD	1999-2001	Pediatric Intensivist, Winthrop University
Zarah Ner, MD	2000-2001	Pediatric Pulmonologist
Verun Varma	2004	Medical Student Howard Hughes Scholar
Soo Youn Yi	2005	Medical Student
Clint Capellio	2006	Medical Student
Demitriy Petrov	2005-2006	BS / Medical School Program
Yao Chen, PHD	2006-present	Postdoctoral fellow
Colin Failey MD	2006-2007	Surgical Resident
Katherine Bennett, MD	2007-present	Neonatal Fellow
Christopher Todd, MD	2008-present	Pediatric Critical Care Fellow

**Mentored Postdoctoral Clinical Fellows:**

<u>Name</u>	<u>Years</u>	<u>Career Development</u>
Niurka Rivero, MD	1996-1998	Pediatric Intensivist, Childrens Hospital Los Angeles
Lyn Quintos,MD	1998-2001	Pediatric Intensivist, Winthrop University
Rich Cartie	1998-2001	Pediatric Intensivist,
Howard Jefferies	1999-2001	Pediatric Intensivist, Childrens Hospital Seattle WA
Ashraf AbouZamzam	1999-2001	Pediatric Intensivist, Childrens Hospital Los Angeles, CA
Girish Chandra	1999-2001	Pediatric Intensivist
Steven Choi	2000-2001	Pediatric Intensivist,
David Epstein	2000-2001	Pediatric Intensivist, Los Angeles, CA
Karen Underwood	2000-2001	Pediatric Intensivist,
Alan Graham	2001	Pediatric Intensivist



Brigham Willis	2001	Pediatric Intensivist UTSW
Sylvia delCastillo	2001	Pediatric intensivist, Childrens Hospital Los Angeles, CA

### **Teaching Responsibilities:**

Lectures in Pediatric Critical Care for Pediatric Residents, Childrens Hospital of Pittsburgh, University of Pittsburgh and Babies and Childrens Hospital Columbia University 1991-96

Pediatric Advanced Life Support, Babies and Childrens Hospital, Columbia University 1994-96

Director of Journal Club for PICU, Babies and Childrens Hospital, Columbia University 1994-1996

Director of Journal Club for CTICU with CME credits, Childrens Hospital of Los Angeles 1997-2001

Director of Journal Club for PICU with CME credits, Childrens Hospital of Los Angeles 1997-2001

Organization and Director of Pediatric Critical Care Fellows teaching curriculum, Childrens Hospital of Los Angeles 2000-2001

### **Clinical Responsibilities:**

Attending Pediatric Intensive Care Unit, Babies and Childrens Hospital, Columbia University 1994-1996

Attending Pediatric Cardiothoracic Intensive Care Unit, Childrens Hospital of Los Angeles 1996-2001

### **Grant Support:**

#### **Past:**

1. 1992-1993, NIH Pulmonary Research Training Grant, University of Pittsburgh, \$ 30,000
2. 1993-1998, American Heart Association Clinician-Scientist Award, 93004140: "Gene Transfer to Pulmonary Endothelium in Acute Lung Injury" \$ 250,000, PI Margaret Schwarz

3. 1993-1994, Start up funds from Childrens Hospital of Pittsburgh "Direct Gene Transfer to Fetal Lung" \$ 30,000, PI Margaret Schwarz
4. 1996-1999, Grant-in-Aid Local Affiliate New York, American Heart Association, "A novel anti-angiogenic cytokine" \$120,000, (declined secondary to move out of state) PI Margaret Schwarz
5. 1996-1997, Initiation Grant, American Heart Association, 93004140: "Gene Transfer to Pulmonary Endothelium in Acute Lung Injury" \$ 30,000, PI Margaret Schwarz
6. 1997-1999, Grant-in-Aid Local Affiliate Los Angeles, American Heart Association 1131-G12: Endothelial-Monocyte Activating Polypeptide II: Characterization of an anti-angiogenic cytokine, \$ 80,000, PI Margaret Schwarz
7. 1997-1999, Intramural funding "Endothelial-Monocyte Polypeptide II: An Important Modulator of developing Lung Neovascularization", \$100,000, PI Margaret Schwarz
8. 1998-2002, National Institutes of Health NHLBI R29 HL60061: "Modulators of Neovascularization in the Developing Lung", \$ 280,000, PI Margaret Schwarz
9. 1998-2000, ALA Research Grant RG-084-N: "Mechanism of a Negative Modulator of Lung Neovascularization" \$ 50,000, PI Margaret Schwarz
10. 2000-2002, AHA Grant in Aid (Local Affiliate) 0050782Y: "The role of the Anti-angiogenic Protein EMAP II in recovery from Myocardial Infarction" \$ 120,000 (electively terminated 12/00 due to receipt of National Grant), PI Margaret Schwarz
11. 2000-2001, Cystic Fibrosis Foundation (Local Affiliate) "To determine the role that EMAP II has on the progression of lung disease associated with Cystic Fibrosis" \$ 100,000, PI Margaret Schwarz
12. 1999-2004, National Institutes of Health NHLBI KO2 HL03981: "Defining the Role of a Negative Modulator of Neovascularization" \$ 493,125, PI Margaret Schwarz
13. 2000-2003, ALA Career Investigator Award CI-001-N: "Role of Neovascularization in Lung Morphogenesis" \$105,000, PI Margaret Schwarz
14. 2001-2004, AHA Grant in Aid (National Affiliate) 0150140N: "The role of the Anti-angiogenic Protein EMAP II in recovery from Myocardial Infarction", \$ 210,000, PI Margaret Schwarz
15. 2002-2004 New Jersey Commission on Cancer Research "Ras inhibition and antiangiogenic VEGF-directed therapy of pancreatic cancer", \$ 97,900, Co-investigator Margaret Schwarz

16. 2002-2004 Robert Wood Johnson Foundation "Antiangiogenic EMAP II combination treatment of pancreatic cancer," \$ 35,000, Co-investigator Margaret Schwarz

**Current:**

17. 2003-2008, National Institutes of Health NHLBI R01 HL075764-01: "Vasculature is a determinant of Epithelial Morphogenesis," \$ 1,000,000, PI Margaret Schwarz
18. 2004-2009, National Institutes of Health NHLBI R01 HL60061-06 "EMAP II Regulation of Pulmonary Cell Proliferation" \$ 1,000,000, PI Margaret Schwarz

**Publications:**

**Recent Abstracts:**

1. Schwarz RE, Konduri, S, Cafasso, D, **Schwarz, MA** Androgen receptor blockade in experimental combination therapy of pancreatic cancer (accepted for oral/oster presentation, Association for Academic Surgery 1<sup>st</sup> Annual Academic Surgical Congress, Feb. 7-11, 2006, San Diego, CA)
2. Schwarz, RE, Konduri, S, Cafasso, D, **Schwarz, MA** Experimental EMAP II combination therapy of pancreatic cancer targeting tumor angiogenesis (accepted for oral presentation, Society of University Surgeons 1<sup>st</sup> Annual Academic Surgical Congress, Feb. 7-11, 2006, San Diego, CA)
3. Konduri, S., Schwarz, RE, Cafasso, D., **Schwarz, MA** Biologic effects of antiandrogenic therapy of pancreatic cancer (poster presentation, New Jersey Annual Retreat on cancer Research, Piscataway, NJ, May 25, 2006)
4. Schwarz, RE, Konduri, S., Caldwell, L., **Schwarz, MA** Inhibition of fibronectin dependent pancreatic cancer proliferation through EMAP II therapy (accepted for oral presentation, Association for Academic Surgery 2<sup>nd</sup> Annual Academic Surgical Congress, February 6-9, 2007, Phoenix, AZ.
5. Schwarz, RE, Konduri, S., Awasthi, N., Cafasso, D., Caldwell, L., **Schwarz, MA** Enhancing gemcitabine-mediated effects against experimental pancreatic cancer via two antiangiogenic strategies (accepted for oral presentation, American Hepato-Pancreato-Biliary Association 2007 Annual Meeting, April 19-22, 2007, Las Vegas, NV).

**Refereed Original Articles in Journals:**

1. Franklin, W., Dietrich, A., Hickey, B., **Brookens, M.**; Anomalous left coronary artery masquerading as infantile bronchiolitis. *Ped. Emerg. Care*, 8(6):338-41, 1992.
2. Pitt, B., **Brookens, M.**, Steve, R., Atlas, A., Davies, P., Shiu-Ming, K. and Lazo, J.; Expression of pulmonary metallothionein genes in late gestational lambs. *Ped. Res.*, 32:424-430, 1992.
3. Johnson, B., Lowenstein, C., **Brookens, M.**, Nakayama, D., Pitt, B., and Davies, P.; Isolation and characterization of rat pulmonary arterial microvessels and microvascular smooth muscle cells. *Am. J. Resp. Mol. Cell Bio.*, 10(6):604-12, Jun. 1994.
4. **Schwarz, M.**, Lazo, J.S. Yalowich, J., Reynolds, I., Kagan, V., Tyurin, V., Kim, Y-M., Watkins, S., and Pitt, B.; Cytoplasmic metallothionein overexpression protects NIH3T3 cells from *tert*-Butyl Hydroperoxide toxicity. *J. Biol. Chem.*, 269(21):15238-43, 1994.
5. Gutierrez, H., Pitt, B., **Schwarz, M.**, Watkins, S., Caniggia, I., Chumley, P., and Freeman, B.; Pulmonary alveolar epithelial nitric oxide synthase gene expression: regulation by inflammatory mediators. *Am. J. Physiol.* L501-L508, 1995.
6. **Schwarz, M.A.**, Lazo, J.S., Yalowich, J.C., Allen, W.P., Whitmore, M., Bergonia, H., Tzeng, E., Billiar, T., Robbins, P., Lancaster, J.R., and Pitt, B.R.; Metallothionein protects against the cytotoxic and DNA-damaging effects of nitric oxide. *Proc. Nat. Acad. Sci. USA*, vol. 92 4452-4456, 1995.
7. Pitt, B.R., **Schwarz, M.A.**, Pilewski, J., Nakayama, D., Mueller, G., Robbins, P., Watkins, S., Albertine, K., and Bland, R.; Retrovirus-mediated gene transfer in lungs of living fetal sheep. *Gene Therapy*, 2(5):344-50, 1995.
8. Clark, R., Kochanek, P., **Schwarz, M.**, Schiding J., Turner, D., Chen, M., Carlos, T., and Watkins, S.; Inducible nitric-oxide expression in cerebrovascular smooth-muscle and neutrophils after traumatic brain injury in immature rats. *Ped. Res.*, 39(5):784-790, 1996.
9. Marvin, M., Libutti, S., Kayton, M., Kao, J., Hayward, J., Grikscheit, T., Fan, Y., Brett, J., Weinberg, A., Nowygrod, R., LoGerfo, P., Feind, C., Hansen, K., **Schwarz, M.**, Stern, D., and Chabot, J. A novel tumor-derived mediator which sensitizes cytokine-resistant tumors to tumor necrosis factor. *J. of Surg. Res.*, 63(1): 248-255, 1996.
10. Pitt, B., **Schwarz, M.**, Woo, E., Yee, E., Wasserloos, K., Tran, S., Weng, W., Mannix, R., Watkins, S., Tyurina, Y., Tyurin, V., Kagan, V., Steve, G., and Lazo, J.; Overexpression of metallothionein decreases the sensitivity of pulmonary artery endothelial cells to oxidant injury. *Am. J. Physiol.*, 273 (Lung Cell Mol. Physiol.) 17:L856-L865, 1997.

11. **Schwarz, M.**, M. Lee, J. Zhao, F. Zhang, Y. Jin, S. Smith, J. Bhuva, D. Stern, D. Warburton, and V. Starnes EMAP II: A Modulator of Neovascularization in the Developing Lung. *Am. J. Physiol.*, 276 (Lung Cell. Mol. Physiol.) 20:L365-375, 1999.
12. Kayton, ML, Rowe, DH, O'Toole, KM, Thompson, RB, **Schwarz, MA**, Stolar, CJ, and Kandel JJ Metastasis correlates with production of vascular endothelial growth factor in a murine model of human Wilms tumor. *J. Pediatr. Surg.* 34(5):743-8, 1999.
13. **Schwarz MA**, Kandel, J., Brett, G., Li, J., Hayward, J., Schwarz, RE, Chappey, O., Wautier, J., Chabot, J., Lo Gerfo, P., and Stern, D.; Endothelial-Monocyte Activating Polypeptide (EMAP) II, a novel antitumor cytokine that suppresses primary and metastatic tumor growth, and induces apoptosis in growing endothelial cells. *J. Exp. Med.*, 190(3):341-354, 1999.
14. Schwarz RE, Wojciechowicz DC, Picon AI, **Schwarz MA**, and Paty PB. Wheatgerm agglutinin-mediated toxicity in pancreatic cancer cells. *Br J Cancer* 80: (11), 1754-1762, 1999.
15. Warburton, D., **Schwarz, M.**, Tefft, D., Flores-Delgado, G., Anderson KD and Cardoso, WV; The Molecular Basis of Lung Morphogenesis. *Mech Dev.* 92(1):55-81, 2000.
16. **Schwarz, MA**, Zhang, F., Lane, J., Schachtner, S., Jin, Y., Deutsch, G., Starnes, V. and Pitt, BR, Angiogenesis and Morphogenesis of Murine Fetal Distal Lung in an Allograft Model. *Am J Physiol Lung Cell Mol Physiol* 278: L1000-L1007, 2000
17. Zhang, F. and **Schwarz MA**, Expression of Endothelial Monocyte Activating Polypeptide II, an Anti-angiogenic Protein, in the Mouse Embryo. *Dev Dyn* 218:490-498, 2000.
18. **Schwarz, MA**, Zhang, F., Gebb, S., Starnes, V. and Warburton, D. EMAP II Inhibits Lung Neovascularization and airway epithelial morphogenesis. *Mech Dev.*, 95:123-132, 2000 .
19. Ferrario, A., von Tiehl, K., Rucker, N., **Schwarz, MA**, Gill, PS, and Gomer, CJ. Anti-angiogenic treatment enhances photodynamic therapy responsiveness in a mouse mammary carcinoma. *Cancer Res.* 60: 4066-4069, 2000.
20. **Schwarz, MA** Acute Lung Injury: Cellular Mechanisms and Derangements. *Paediatric Respiratory Reviews* 2(1): 3-9, 2001.
21. Zheng, M, **Schwarz, MA**, Lee, S., Kumaraguru, U., and Rouse, BT Control of stromal keratitis by inhibition of neovascularization. *Am. J. Patholo.* 159(3):1021-1029, 2001.
22. Zhang, FR and **Schwarz, MA** Pro - Endothelial-Monocyte Activating Polypeptide (EMAP) II is not primarily cleaved by caspase 3 and 7. *Am J Physiol Lung Cell Mol Physiol* 282:L1239-44, 2002.

23. **Schwarz, MA**, Wan, ZS, Lui, J. and Lee, MK Epithelial-mesenchymal interactions are linked to neovascularization. *Am J Respir Cell Mol Biol.* Jun;30(6):784-92.2004.
24. Thompson, JL, Ryan, JA, Barr, M., Franc, B., Starnes, V., and **Schwarz, MA** A role for anti-angiogenic proteins in the repair process following myocardial infarction? *J Surg Res* 116(1):156-164, 2004.
25. Quintos, ML., White, CW. and **Schwarz, MA** Potential role for anti-angiogenic proteins in the evolution of Bronchopulmonary Dysplasia. *Antioxid Redox Signal.* Feb; 6(1): 137-45, 2004.
26. Schwarz, RE, and **Schwarz, MA** In vivo therapy of local tumor progression by targeting vascular endothelium with EMAP II. *J Surg Res.* Jul 1;120(1):64-72, 2004.
27. Lee, MD, Pryhuber, GS, **Schwarz, MA**, Smith SM, Pavlova, Z, and Sunday ME. Developmental Regulation of p66Shc is altered by Bronchopulmonary Dysplasia in Baboons and Humans. *Am J Respir Crit Care Med.* Jun 15;171(12):1384-94, 2005.
28. **Schwarz, MA**, Zheng, H., Liu, J., Corbett, S., and Schwarz, RE Endothelial-Monocyte Activating Polypeptide II alters fibronectin based endothelial cell adhesion and matrix assembly via alpha5 beta1 integrin. *Exp Cell Res.* Dec; 311(2): 229-39, 2005.
29. Liu, J. And **Schwarz, MA** Identification of protease sensitive sites in Human Endothelial-Monocyte Activating Polypeptide II protein. *Exp Cell Res.* Jul 15;312(12): 2231-7, 2006.
30. Konduri, S., **Schwarz, MA**, Cafasso, D., Schwarz, RE Androgen receptor blockade in experimental combination therapy of pancreatic cancer. *J. Surg. Res.* 2007: Oct;142(2):378-86.
31. **Schwarz, MA**, Caldwell, L., Cafasso, D., and Zheng, H Emerging Pulmonary Vasculature Lacks Fate Specification. (in revision).

#### **Invited Articles in Journals:**

1. Evans, R., Calmels, T., Pitt, B., **Brookens, M.**, Johnson, C., Modzelewski, R., and Lazo,J.; Gene therapy and endothelial cell targeting for cancer. *Ann. N.Y. Acad. Sci.*,716:257-64, 1994 May.

#### **Chapters:**

1. Lazo, J.S., **Schwarz, M.A.**, and Pitt, B.R.; Metallothionein and Cell Death, Metal ions in Biology and Medicine. Edited: Philippe Collery, Lionel A. Poirier, Neil A. Littlefield, and Jean-Claude Etienne, John Libbey. Eurotext, vol. 3, 15-16b.



2. Pitt, B.R., **Schwarz, M.A.**, and Davies,P. Gene Regulation During Hypoxia. Tissue oxygen deprivation: developmental, molecular, and integrated function. Edited: Lister, G. and Haddad, G.G. Marcel-Dekker. 1996:101-116.
3. Pitt, B.R., **Schwarz, M.A.**, and Bland, R.D. Methods for Retroviral-Mediated Gene Transfer to Fetal Lung, Gene Therapy. Methods in Molecular Biology. Edited: P. Robbins. The Humana Press, N.J. 1995:2(5):344-350.

**Books:**

NA

**Other professional communications:**

NA

**Invited Lectures**

October 1991	Critical Care Conference, University of Pittsburgh, PA: The Pulmonary Artery Endothelial Cell - The Effects of Hyperoxia and Hypoxia/Reoxygenation.
November 1991	Critical Care Conference Case Presentation, University of Pittsburgh, PA: Acute Eosinophilic Pneumonitis in the Pediatric Population.
March 1992	Critical Care Conference, University of Pittsburgh, PA: Metallothionein and Free Radicals.
April 1992	Critical Care Conference Case Presentation, University of Pittsburgh, PA: Neonatal Herpes; Presentation and Treatment.
December 1992	Critical Care Conference Case Presentation, University of Pittsburgh, PA: Neurogenic pulmonary edema.
March 1993	Visiting Professor Presentation, University of Pittsburgh, PA: Gene transfer of Metallothionein in NIH 3T3 cells confers protection to antioxidant stress.
August 1993	Buffalo, New York, Critical Care visiting Professor: Protecting Endothelial cells against oxidative injury.
November 1993	Dept. of Physiology, Cardiovascular research conference, University of Pittsburgh, PA: Metallothionein's role as an endothelial defense mechanism against oxidant injury.
September 1994	Pediatric Grand Rounds, Babies and Childrens Hospital, Columbia University, NY, NY: Metallothioneins role as an antioxidant.

November 1994	Pulmonary Conference, Babies and Childrens Hospital, Columbia University, NY, NY: EMAP II, effects on macrophage and endothelial cells.
December 1994	Pulmonary Conference, Babies and Childrens Hospital, Columbia University, NY, NY: Mechanical ventilation.
September 1995	NIH Advisory Council, Bethesda, MA: A novel cytokine, Endothelial Monocyte Activating Polypeptide II suppresses growth of hemangiomas.
January 1996	Pediatric Grand Rounds, Babies and Childrens Hospital, Columbia University, NY, NY : Endothelial-Monocyte Activating Polypeptide II, a novel anti-angiogenic protein.
March 1996	Neonatology Research Conference, Babies and Childrens Hospital, Columbia University, NY, NY: Endothelial-Monocyte Activating Polypeptide II, a novel anti-angiogenic peptide.
March 1996	Pulmonary Research Conference, Boston University, Boston, Mass.: Endothelial-Monocyte Activating Polypeptide II, a novel anti-angiogenic peptide.
March 1996	Cambridge Symposium, Florida: Endothelial-Monocyte Activating Polypeptide II, a novel anti-angiogenic peptide.
October 1996	Pediatric Grand Rounds, Childrens Hospital of Los Angeles, CA: Endothelial Monocyte Activating Polypeptide II: A novel anti-angiogenic protein.
February 1997	USC Cancer Center Grand Rounds at the Norris Cancer Center in Los Angeles, CA: Endothelial Monocyte Activating Polypeptide II: A novel anti-angiogenic protein.
July 1997	Pediatric Grand Rounds at Huntington Hospital, Los Angeles, CA: Endothelial Monocyte Activating Polypeptide II: A novel anti-angiogenic protein.
February 1998	Norris Cancer Center Mini-Symposia Series, USC Los Angeles, CA: "Control of Cellular Functions by the Extracellular Matrix"
September 1998	The Annual meeting of the California Society of Pediatric Cardiology, Altos, CA: "Respiratory issues in the Post-operative Cardiac Patient"
February 1999	Pediatric Grand Rounds at the University of Minnesota, Minneapolis, MN:



	“Defining the role of a negative modulator of neovascularization in fetal lung development.”
February 1999	Research in Progress Conference, University of Minnesota, Minneapolis, MN: “Vascular Development in the Lung.”
February 1999	Moderator for the Cell Signal session in the Developmental Biology Symposium, Childrens Hospital Los Angeles, CA
June 1999	Center for Lung Biology Seminar Series, University of Southern California Division of Pulmonary and Critical Care Medicine, Los Angeles, CA: “The role of anti-angiogenic proteins in fetal lung neovascularization.”
August 1999	Pediatric Grand Rounds, Childrens Hospital of Los Angeles, CA: “The Role of Anti-angiogenic Proteins in Fetal Lung Development”
October 1999	IVth International Workshop on Pediatric Cardiothoracic Surgery, The Heart Institutes at Childrens Hospital Los Angeles and Children’s Hospital San Diego, San Diego, CA: “Post-Operative Management of the Neonate”
November 1999	Habor - University of California Los Angeles Medical Center Research Seminar, Torrance, CA: “The role of EMAP II in fetal lung neovascularization”
December 1999	Childrens Hospital Research Institute Research Seminar, Los Angeles, CA: “EMAP II: A Negative Modulator of Neovascularization in the Fetal Lung”
April 2001	Developmental Biology Program and Department of Pediatric Surgery Workshop titled What has Developmental Biology got to do with Cancer? University of Southern California: “Angiogenesis inhibition in development and cancer.”
June 2001	Harbor - University of California Los Angeles Medical Center Research Seminar, Basic Science Lecture series: “Vascularization of the Developing Lung.”
June 2002	New Jersey Thoracic Society Keynote Speaker “ The Impact of the Vasculature on Lung Development.”
February 2003	Grand Rounds Presentation for UMDNJ Department of Surgery “The blood vessel, transport barge or command ship?”
September 2003	Pediatric Pulmonary Research Conference, University of Pittsburgh,

	Pittsburgh, PA "Pulmonary Vasculature is a Determinant of Epithelial Morphogenesis."
October 2003	Cardiovascular Research Conference, Cell Biology and Molecular Medicine, UMDNJ Newark, NJ "Anti-angiogenic proteins, facilitator or inhibitor of myocardial repair following infarction."
February 2005	Pediatric Ground Rounds, Childrens Hospital Los Angeles – USC Los Angeles, CA "The Blood Vessel: Transport Barge or Command Ship."
May 2005	Surgery Grand Rounds, UMDNJ-RWJMS New Brunswick, NJ "Exploring Anti-endothelial EMAP II Cancer Therapy: Utility and Mechanism."
September 2005	Student Interested in Research, UMDNJ-RWJMS, Piscataway, NJ "Vascular modulation in lung development and tumor growth."
October 2005	Coordination of Vascularization and Lung Development, National Institutes of Health, Bethesda, Maryland "Vasculature is a determinate of epithelial morphogenesis."
November 2005	Molecular Mechanisms of Tumor Growth Conference, Cancer Institute of New Jersey, UMDNJ-RWJMS Piscataway, NJ "Regulating the proliferating / anti-angiogenic switch of EMAP II."
May 2006	Pediatric Research Conference, UT Southwestern, Dallas, TX "(e)MAP of the Pulmonary Vasculature."
November 2006	Surgery Grand Rounds, UMDNJ-RWJMS New Brunswick, NJ "Angiogenesis and Tissue repair, Taken to Heart."
February 2007	Visiting Professor series, Institute for Medicine and Engineering, University of Pennsylvania, Philadelphia, PA "Lung Development: Vessels Rule."
September 2007	Pediatric Intensive Care Fellows Research Conference UT Southwestern Dallas TX "Lung Development, What's Vasculature got to do with it?"
November 2007	Angiogenesis Seminar Invited Lecturer UT Southwestern Dallas TX "Vascular contributions to Lung Development."
November 2007	Pulmonary Vascular Biology WIPS UT Southwestern Dallas TX "The Third Dimension of Lung Development."

February 2008

Faculty Research Conference, UT Southwestern Dallas TX “Putting the Squeeze on BPD.”